

Application No. 09/943,610
Attorney Docket No 2001B081
Amendment Dated November 25, 2003
Reply to Office Action of July 7, 2003

Amendments to the Claims:

This listing of the claims will replace all prior versions and listing of claims in the applications:

Listing of Claims:

1. (Presently Amended) A method of making olefins, comprising contacting an oxygenate feed with at least two different zeolite catalysts to form an olefin composition, wherein a first zeolite catalysts comprising a ZSM-5 molecular sieve and a second zeolite catalyst comprising a zeolite molecular sieve selected from the group consisting essentially of ZSM-22, ZSM-23, ZSM-35, ZSM-48, and mixtures thereof.

2. (Original) The method of claim 1, wherein the oxygenate feed contains at least 70 wt.% oxygenate.

3. (Original) The method of claim 1, wherein the oxygenate feed contains at least 80 wt.% oxygenate.

4. (Original) The method of claim 1, wherein the oxygenate feed contains at least 90 wt.% oxygenate.

5. (Canceled)

6. (Presently Amended) The method of claim 5claim 1, wherein the ZSM-5 molecular sieve is selected from the group consisting essentially of an unmodified ZSM-5, a phosphorous modified ZSM-5, a steam modified ZSM-5 having a micropore volume reduced to not less than 50% of that of the unsteamed ZSM-5, and mixtures thereof.

7. (Canceled)

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8. (Cancelled)

9. (Presently Amended) The method of claim 1, wherein ~~at least one of the zeolite catalysts~~ ~~the second zeolite catalyst~~ ~~contains~~ ~~comprises~~ at least one of the zeolite molecular sieves selected from the group consisting essentially of ZSM-22, ZSM-35, and mixtures thereof.

10. (Presently Amended) The method of claim 1, wherein ~~at least one of the zeolite catalysts~~ ~~the second zeolite catalyst~~ contains a ZSM-35 molecular sieve.

11. (Presently Amended) The method of claim 1, wherein ~~the zeolite catalysts comprise~~ ~~the second zeolite catalyst comprises~~ a zeolite catalyst containing a ZSM-5 molecular sieve and a zeolite catalyst containing a ZSM-22 ~~molecular sieve~~, or a ZSM-35 molecular sieve ~~or mixtures thereof~~.

12. (Presently Amended) The method of claim 1-~~or 1-1~~, wherein the oxygenate feed is contacted with the ~~at least two~~ zeolite catalysts mixed together in one reactor.

13. (Presently Amended) The method of claim 1-~~or 1-1~~, wherein the oxygenate feed is contacted with the ~~zeolite catalysts~~ in a first bed containing a ~~first~~ ~~the first~~ zeolite catalyst ~~containing~~ ~~comprising~~ a ZSM-5 molecular sieve and a second bed containing a ~~the second~~ zeolite catalyst ~~containing~~ ~~comprising~~ ~~molecular sieve~~ ~~selected from the group consisting of~~ ZSM-22 ~~molecular sieve~~, ZSM-35 ~~molecular sieve~~, and ~~or~~ mixtures thereof.

14. (Presently Amended) The method of claim 1-~~or 1-1~~, wherein the oxygenate feed is contacted with the ~~at least two~~ zeolite catalysts in separate reactors in series.

15. (Presently Amended) A method of making an olefin composition comprising:
contacting an oxygenate with a first zeolite catalyst ~~comprising~~ a
ZSM-5 molecular sive to form an olefin product;

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separating a butylene containing stream from the olefin product;
and

contacting the butylene containing stream with a second zeolite catalyst comprising a zeolite molecular sieve selected from the group consisting of ZSM-22, ZSM-23, ZSM-35, ZSM-48, and mixtures thereof to form a second olefin product.

16. (Original) The method of claim 15, wherein the butylene containing stream contains at least 20 wt.% butylene.

17. (Original) The method of claim 16, wherein the butylene containing stream contains at least 40 wt.% butylene.

18. (Original) The method of claim 15, wherein the butylene containing stream contains at least 50 wt.% butylene.

19. (Canceled).

20. (Presently Amended) The method of claim 19claim 15, wherein the ZSM-5 is selected from the group consisting of unmodified ZSM-5, a phosphorous modified ZSM-5, a steam modified ZSM-5 having a micropore volume reduced to not less than 50% of that of the unsteamed ZSM-5, and mixtures thereof.

21. (Canceled).

22. (Presently Amended) The method of claim 21claim 1, wherein the first zeolite catalyst contains a ZSM-5 molecular sieve and the second zeolite catalyst contains comprises ZSM-22 or molecular sieve, ZSM-35 molecular sieve or mixtures thereof.

23. (Presently Amended) The method of claim 15-or22, wherein the oxygenate is contacted with the first zeolite in a fluidized-bed or riser reactor.